SONY

3-750-592-21 (2)

FM Stereo/FM-AM Receiver

Operating Instructions

STR-D2010

© 1989 by Sony Corporation

WARNING

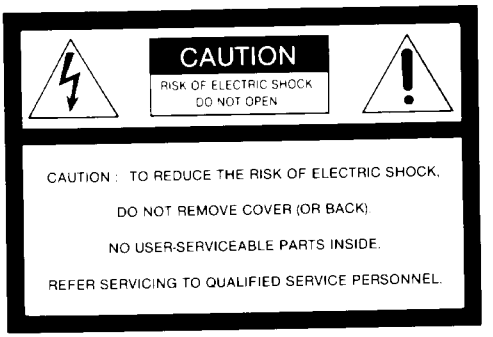
OWNER'S RECORD

The model and serial numbers are located at the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. STR-D2010 Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

Reorient the receiving antenna
Relocate the equipment with respect to the receiver
Move the equipment away from the receiver
Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful :

"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

For the customers in Canada

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

CAUTION:

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

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Precautions

On safety

- Operate the unit only on 120 V AC, 60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.

On operation

Before making program source connections, be sure to unplug the unit.

On cleaning the cabinet

Clean the cabinet, panel and controls with a soft cloth slightly moistened with mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent such as alcohol or benzine.

For the customers in U.S.A.

For detailed safety precautions, see the "IMPORTANT SAFEGUARDS" leaflet.

If you have any question or problem concerning your unit, please consult your nearest Sony dealer.

Overview

The STR-D2010 is a FM stereo/FM-AM receiver with a built-in digital signal processor. You can enjoy various audio and video program sources with this unit.

Digital surround processor

The STR-D2010 incorporates five types of surround effect and you can adjust reverberation/initial delay time and surround level to maximize each effect for your room.

- DOLBY SURROUND * – reproduces the specially encoded sound on Dolby surround video programs.
- Hall surround -- provides reverberation such as that produced in a large concert hall.
- Live surround -- provides reflected sounds such as those produced at live performance.
- Stadium surround -- gives the feeling of sound heard in a large stadium.
- Simulated surround -- gives width and depth to the monaural sound of old movies, etc.

* Manufactured under license from Dolby Laboratories Licensing Corporation. Additionally licensed under one or more of the following patents: U.S. numbers 3,632,886, 3,746,792, and 3,959,590; Canadian numbers 1,004,603 and 1,037,877. "DOLBY" and the double-D symbol ⊡⊡ are trademarks of Dolby Laboratories Licensing Corporation.

Digital parametric equalizer

- You can enjoy program sources with appropriate equalization curve by controlling the level of the desired 3 frequency bands.
- You can store the equalization curves you created and recall them very quickly.
- EQ Link system allows you to tune in a preset station and immediately enjoy the sound with the stored equalization curve.

Digital Dynamic Sound

- You can enjoy dynamic sound even at small output levels.

TV/VCR control center

- You can control up to three VCRs or video disc players and a monitor TV with this unit.
- You can enjoy TV or CATV programs with FM simulcast sounds.
- You can add sounds from various audio program sources to video tapes during editing.

Quartz-locked digital synthesizer tuner

- You can store up to 30 radio broadcast stations in the unit.
- Index Tuning system allows you to categorize the stations by kinds of music, etc. and tune in a station quickly.

High-power amplifier with a built-in D/A converter

- The built-in D/A converter allows you to directly connect digital audio equipment with optical/coaxial digital outputs.
- Independent 2-channel amplifier is built-in for the rear surround speakers.
- The amplifiers in this unit output 195 + 195 watts for the front speakers and 15 + 15 watts for the rear speakers at dynamic power output.

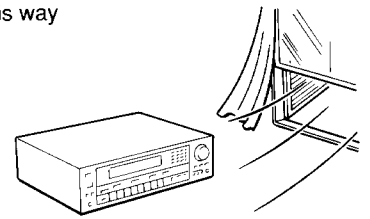
Programmable system commander RM-P201

- The supplied remote commander can "learn" the various functions of other infrared type remote commanders.

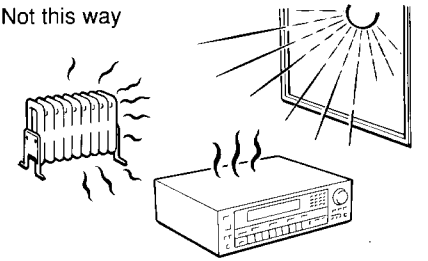
Notes on Installation

Place the unit in a location with adequate air circulation to prevent internal heat build-up in the unit.

This way



Not this way



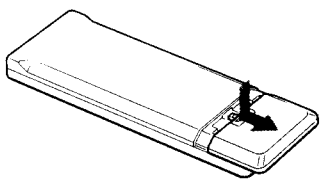
Do not install this unit:

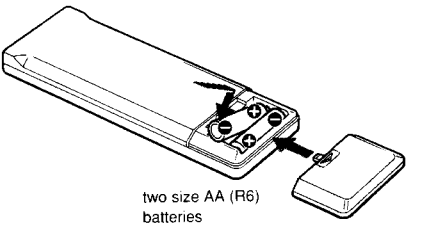
- near heat sources such as radiators or air ducts.
- in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

Do not place anything on top of the cabinet. The top ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its components.

Loading the Batteries into the Remote Commander

Programmable System Commander RM-P201





two size AA (R6) batteries

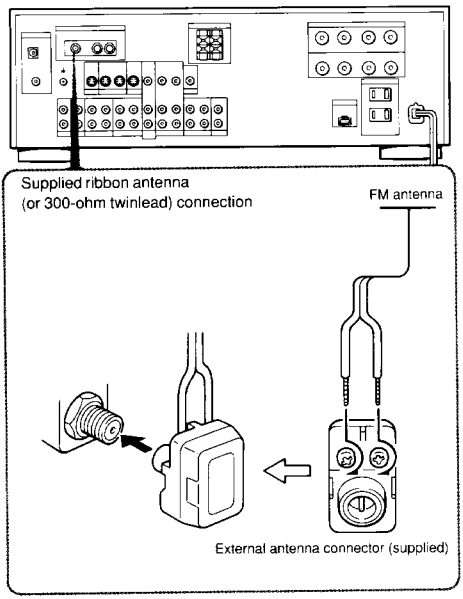
Do not throw away the carton and packing material.
It will be an ideal container when transporting the unit.

To avoid damage caused by battery leakage and corrosion
When the commander will not be used for a long time, remove the batteries.

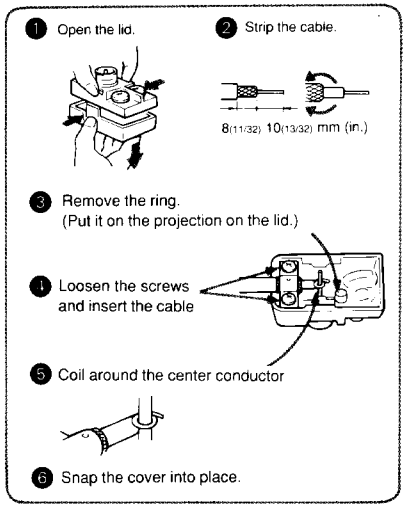
Connections

- Do not connect the power cord to an AC outlet nor press the SYSTEM POWER switch before accomplishing all other connections.
- The cable connectors should be fully inserted into the jacks. Loose connection may cause hum and noise.
- Jacks and plugs of the connection cord are color-coded as follows:
  Red jacks and plugs: for the right channel of audio signals
  White jacks and plugs: for the left channel of audio signals
  Yellow jacks and plugs: for video signals

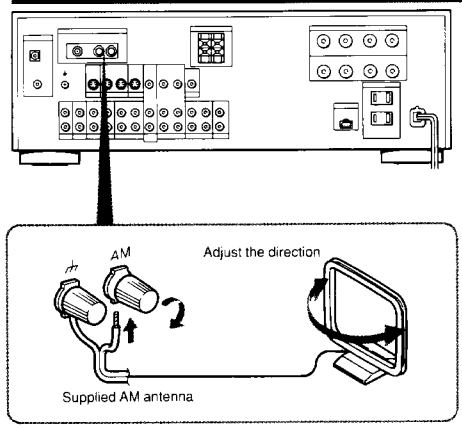
Connecting the FM Antenna



75-ohm coaxial cable connection
A 75-ohm coaxial cable is free from external interference, reduces noise pickup, and is the ideal transmission line for most FM installations. A 3C-2V cable is recommended. Connect the 75-ohm coaxial cable to the supplied antenna connector and connect it to the FM antenna connector.


1 Open the lid.
2 Strip the cable.
8(11/32) 10(13/32) mm (in.)
3 Remove the ring.
(Put it on the projection on the lid.)
4 Loosen the screws
and insert the cable
5 Coil around the center conductor
6 Snap the cover into place.

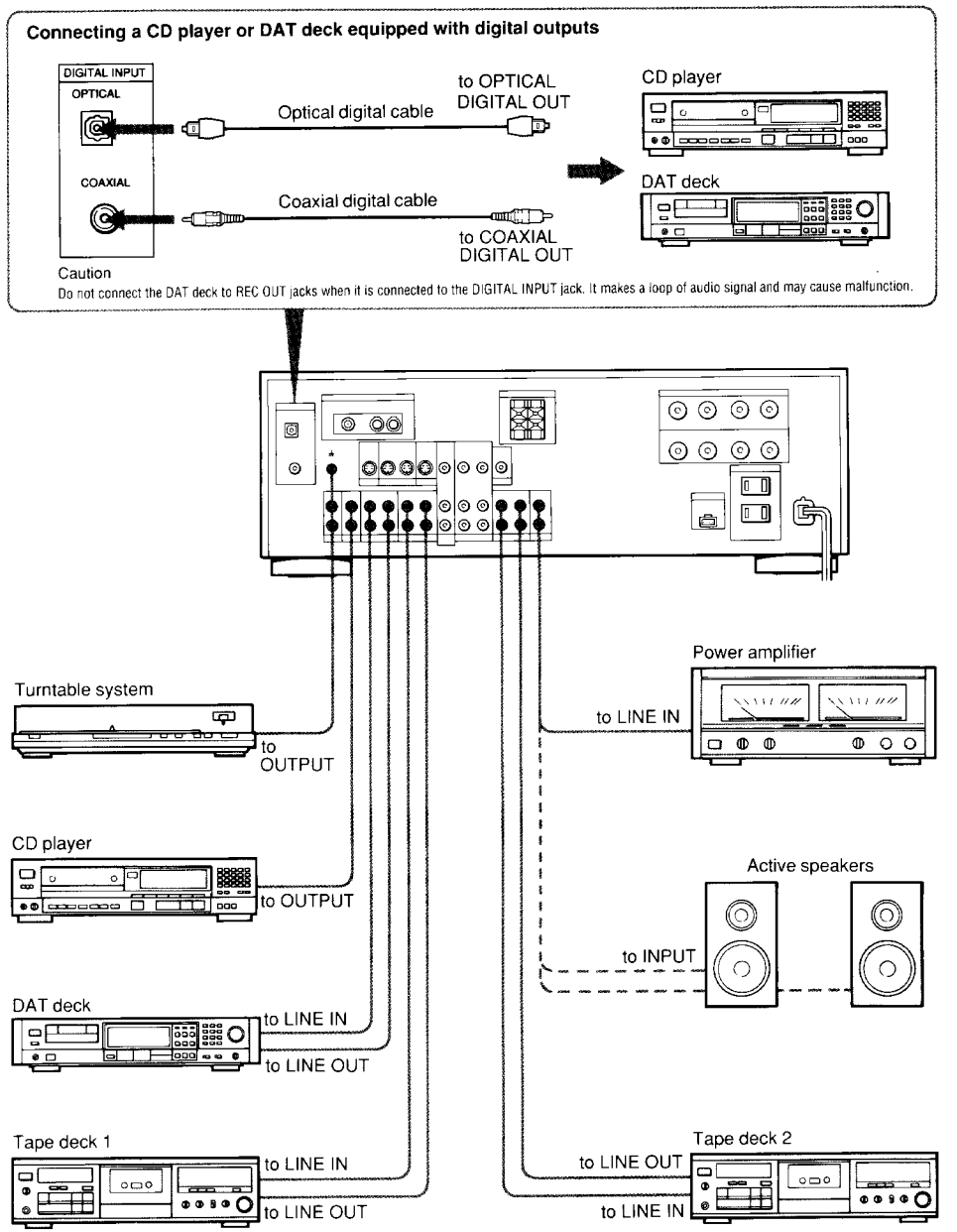
Connecting the AM Antenna



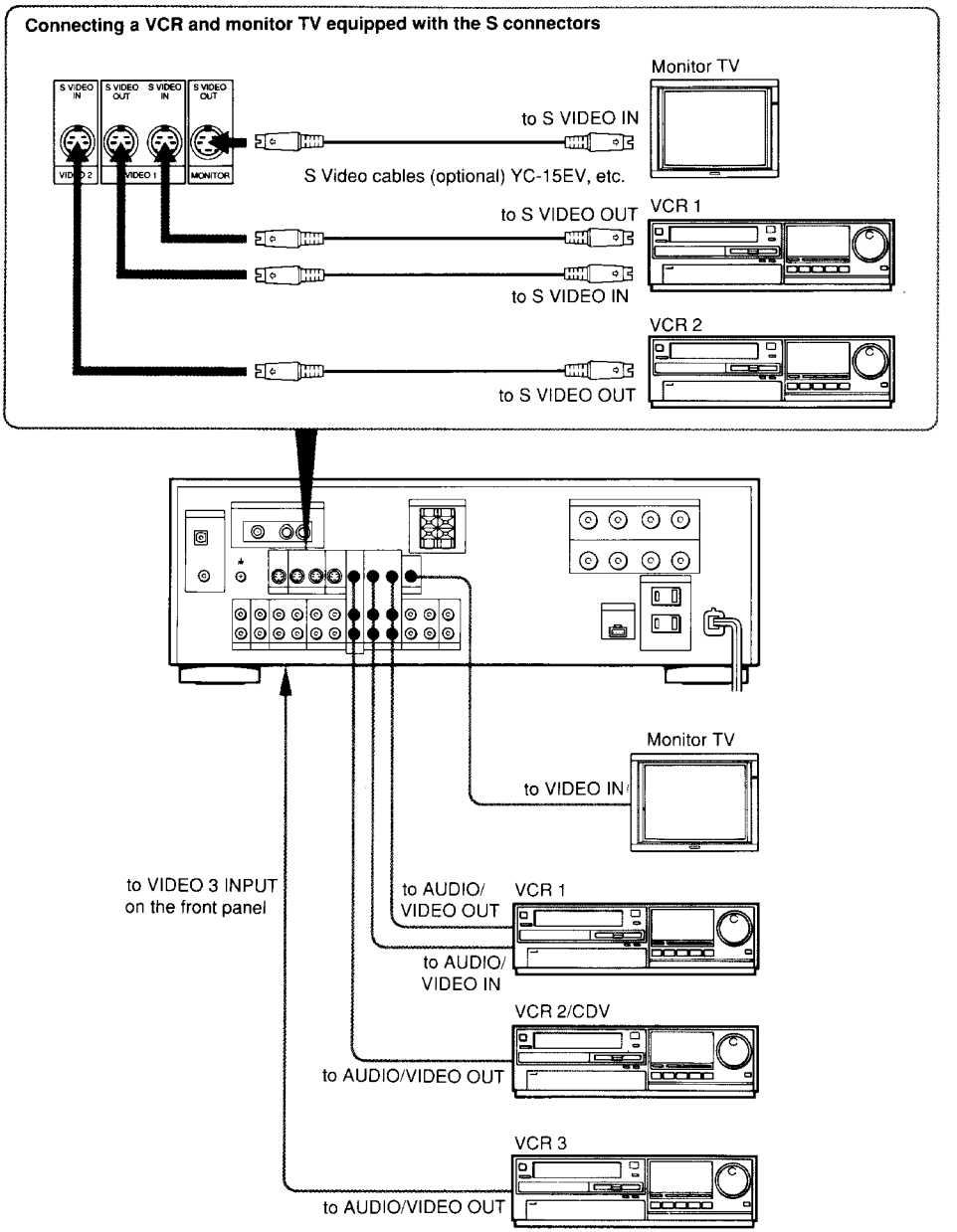
For areas with difficult AM reception
In areas with troubled reception, connect a 6- to 15-meter (20- to 50-foot) insulated wire to the AM antenna terminal. Extend this out of doors if possible, keeping the greater portion horizontal.
(There is no need to disconnect the supplied antenna.)

To prevent hum, connect the ground wire to ANTENNA ground terminal (⏚).
When an outdoor antenna is installed, be sure to connect the grounds wire for lightning protection.

Connecting Audio Equipment

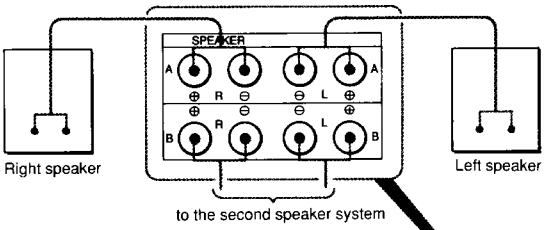


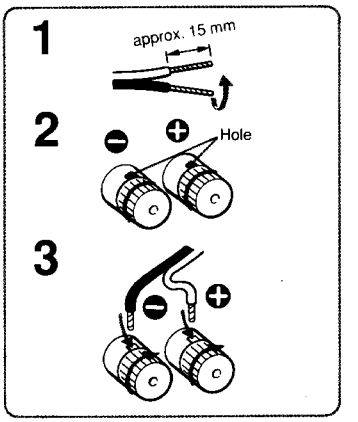
Connecting Video Equipment

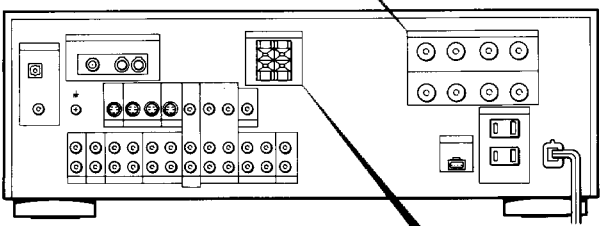


Connecting Speaker Systems

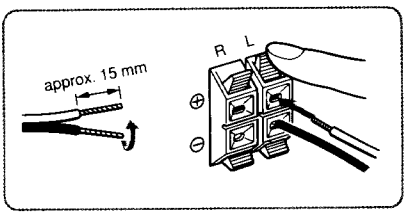
Connecting main speaker systems

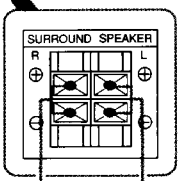






Connecting a surround speaker system





Right surround speaker

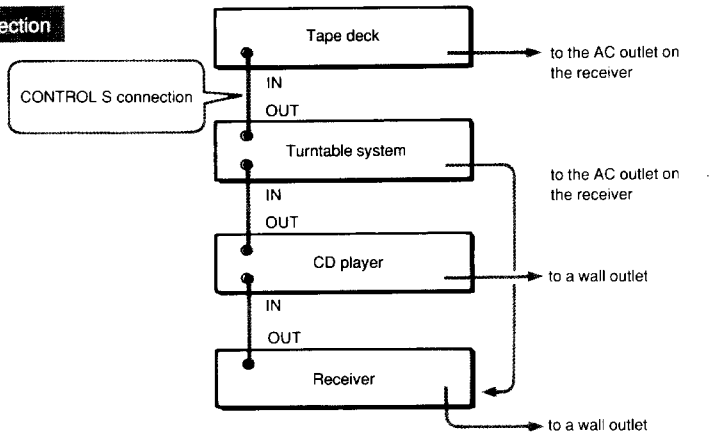
Left surround speaker

Speaker impedance and power capability
This receiver is designed to work best with speakers having nominal impedance from 8 to 16 ohms, at rated 130 watts minimum RMS per channel with an 8-ohm load from 20 – 20,000 Hz. For surround speakers, connect speakers having nominal impedance from 8 to 16 ohms and rated over 20 watts RMS.

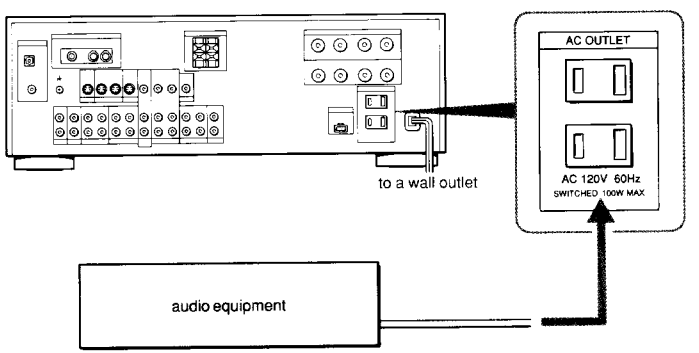
Connecting the Remote Control System

To control the equipment connected to the receiver with the remote commander, connect the CONTROL S OUT connector and the CONTROL S IN connector of each piece of equipment as illustrated below.

Example of audio connection



Connecting the AC power



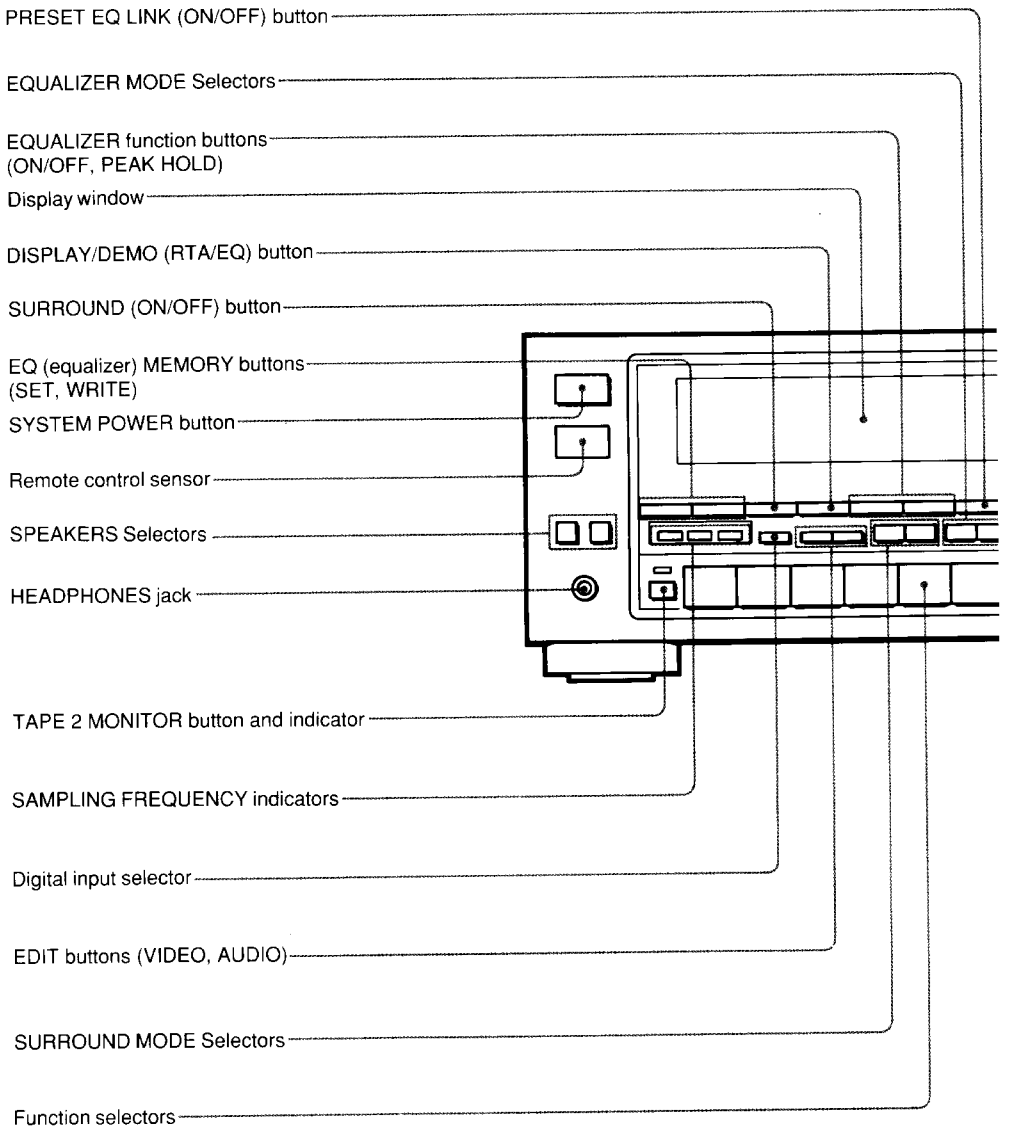
Caution

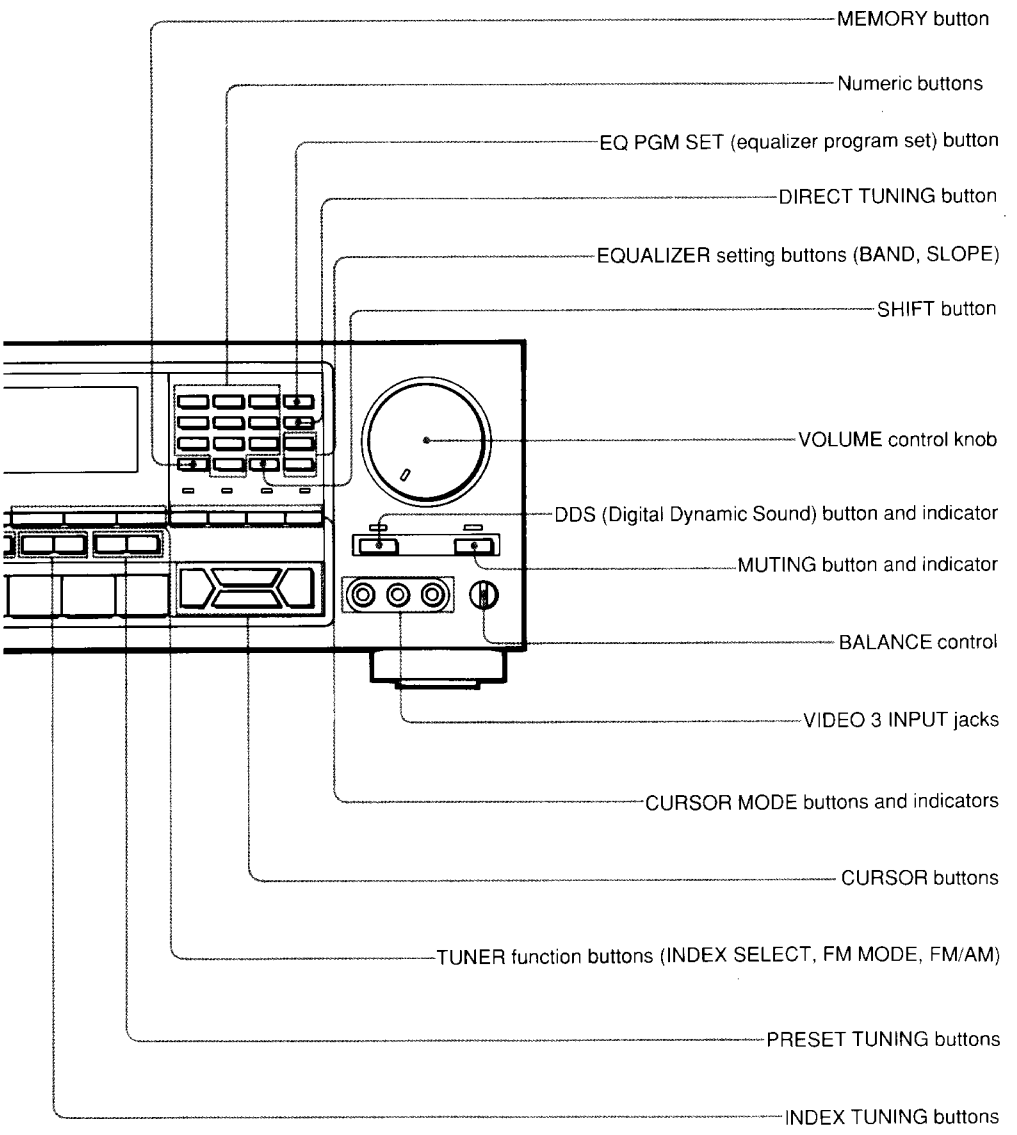
Be careful that the total power consumption of each piece of equipment connected to the outlets on the receiver does not exceed 100 watts.

Do not connect electrical home appliances such as an electric iron, fan, TV, or other high-wattage equipment to these outlets.

Parts Identification

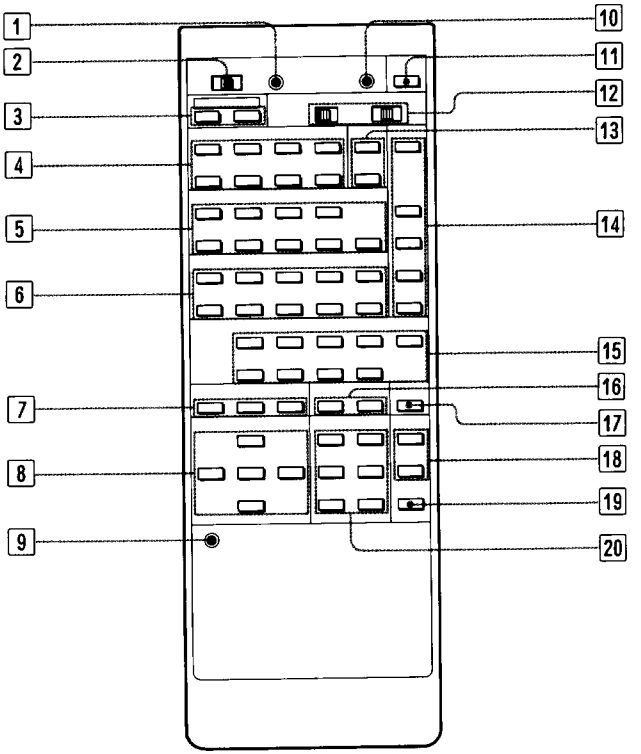
Front Panel




MEMORY button
Numeric buttons
EQ PGM SET (equalizer program set) button
DIRECT TUNING button
EQUALIZER setting buttons (BAND, SLOPE)
SHIFT button
VOLUME control knob
DDS (Digital Dynamic Sound) button and indicator
MUTING button and indicator
BALANCE control
VIDEO 3 INPUT jacks
CURSOR MODE buttons and indicators
CURSOR buttons
TUNER function buttons (INDEX SELECT, FM MODE, FM/AM)
PRESET TUNING buttons
INDEX TUNING buttons

Programmable System Commander RM-P201 (supplied)

The RM-P201 can "learn" various functions of other remote commanders which use infrared rays.
When the mode selector is set to SONY STD (Sony Standard), buttons on the RM-P201 can be used to perform the functions below.



[1] **LEARN indicator**

[2] **Mode selector**
SONY STD : To operate the commander on Sony standard.
USER STD : To use the learned functions.
LEARN : To learn other functions.

[3] **TV and VTR POWER buttons**
TV: Turns on/off the TV.
VTR: Turns on/off the VCR.

[4] **CD player operation buttons**
▶ : Play
■ : Stop
⏮ ⏭ : AMS (Automatic Music Sensor)
PGM : Program play
SHUFFLE : Shuffle play
CONTINUE : Continuous play
DISC SKIP : Disc skip

[5] **TAPE deck operation buttons**
◀◀: Reverse fast winding
◀ : Reverse play
▶ : Forward play
▶▶: Forward fast winding
■ : Stop
II : Pause
● : Recording (While you press ●, REV for reverse recording or FWD for forward recording.)

[6] **VTR operation buttons**
◀◀ : Rewind
▶ : Play
▶▶ : Fast forward
■ : Stop
II : Pause
● : Recording buttons (Press both buttons for recording.)
ANT TV/VTR : Selects the output signal from the antenna terminal from the VCR, either TV or VCR.
CH +/– : Channel select buttons

[7] **EQUALIZER operation buttons**
ON/OFF : Turns on/off the equalizer.
MODE : Selects the equalizer mode (A to G).
BAND : Selects the frequency band.

[8] **CURSOR MODE operation buttons**

[9] **RESET button**
Press this button and operate again if the equipment works incorrectly.

[10] **PROGRAM CLEAR button**

[11] **POWER button**
Turns on/off the receiver.

[12] **DECK and VTR selectors**
DECK A, B : Selects cassette deck A or B.
VTR 1, 2, 3 : Selects VCR 1, 2 or 3.
1 : Betamax VCRs
2 : 8 mm VCRs
3 : VHS VCRs

[13] **PHONO buttons**
START : Starts record play.
STOP : Stops record play.

[14] **TV operation buttons**
TV/VIDEO : Selects the input signal to the TV set, either a TV broadcast or VCR programs.
VOL (volume) +/– buttons
CH (channel) +/– buttons

[15] **FUNCTION selectors**

[16] **SURROUND buttons**
ON/OFF : Turns on/off the surround function.
MODE : Selects the surround mode.

[17] **DBFB/DDS ON/OFF button**
Turns on/off the DDS (Digital Dynamic Sound).

[18] **VOL (volume) control buttons**

[19] **MUTING button**

[20] **TUNER operation buttons**
INDEX +/– : Selects a next/previous preset station under the same index.
SELECT : Index select button
PRESET +/– : Selects a higher/lower preset number.
EQ LINK : Turns on/off the EQ link.

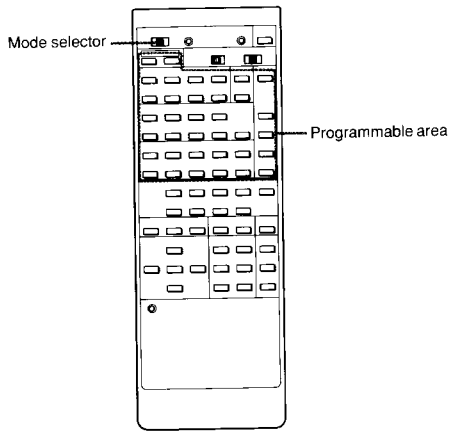
Notes
- When the CONTROL S OUT connector is connected to the CONTROL S IN connector of each equipment, you can control the connected equipment using this remote commander.

Using the Remote Commander

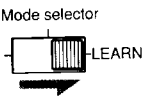
- When you manipulate a switch or button on the commander, be sure to point the head of the commander toward the remote control sensor on the front of the receiver.
- If there is an obstacle between the receiver and the head of the commander, the receiver may not be controlled remotely.

Programming Signals of Other Audio/Video Equipment with RM-P201

Insert batteries before operating.

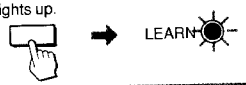


1 Set the mode selector to LEARN.



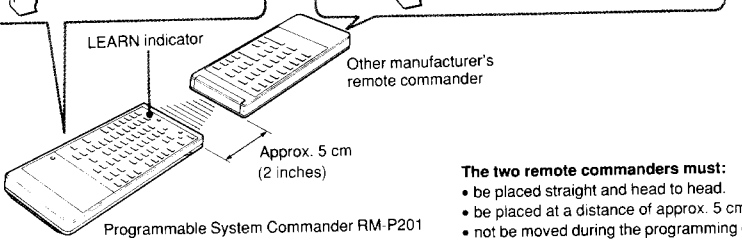
2

① Press and hold the button on which a new remote-control signal is to be programmed until the LEARN indicator lights up.



② Press and hold the button whose signal is to be programmed.

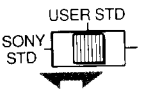
③ Release the button(s) after the LEARN indicator goes off.



The two remote commanders must:
- be placed straight and head to head.
- be placed at a distance of approx. 5 cm (2 inches).
- not be moved during the programming operation.

3 Repeat above steps for each button to be programmed.

4 Set the mode selector to USER STD or SONY STD.



After programming
Be sure to test if the equipment really works with the programmed signals.

If the LEARN indicator flashes or does not go off in step 2-②, ③
The memory capacity is full. This occurs when other signals stronger than the remote-control signals have been stored because the signals were programmed in a noisy environment or the remote commanders were placed too for apart from each other.
→ Clear all the signals following the procedure on the right and program again from the beginning under the proper conditions.

Notes on programming
- Remote-control signals of equipment of manufacturers other than Sony can be programmed only when they are compatible with the infrared wireless remote control system. Since the programmable commander can "learn" only the signals output from another remote commander, it cannot control equipment that do not use a remote commander. Also, note that there are some special remote-control signals that cannot be programmed.
- Do not attempt to use the programmable system commander with an air conditioner or other household appliances.

To program a new signal onto a previously programmed button

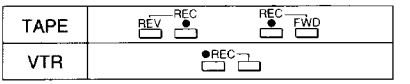
Follow the programming procedure.
The previously programmed signal is cleared and replaced by the new signal.

To clear all programmed signals
1 Set the mode selector to LEARN.
2 Press and hold any button of the programmable area until the LEARN indicator lights up.
3 Press PROGRAM CLEAR until the LEARN indicator flashes and goes off.

Note

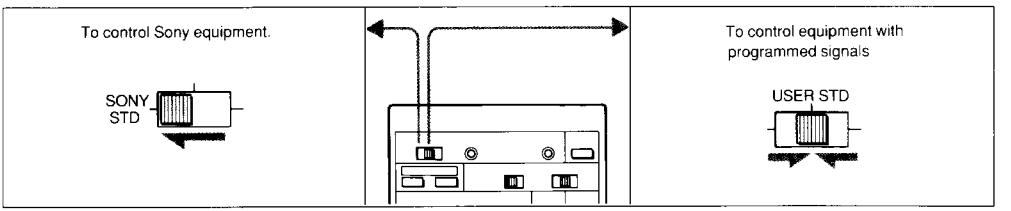
It is not possible to clear the programmed content of just one button.

To program a signal onto the ● REC button in the TAPE or VTR section
It is not possible to operate any equipment with only the ● REC button. To program a signal on the ● REC button, press and hold the following buttons at the same time in step 2- ①.



Controlling Equipment

By switching the mode selector as shown below, a single button alternately controls Sony equipment and equipment of another manufacturer.



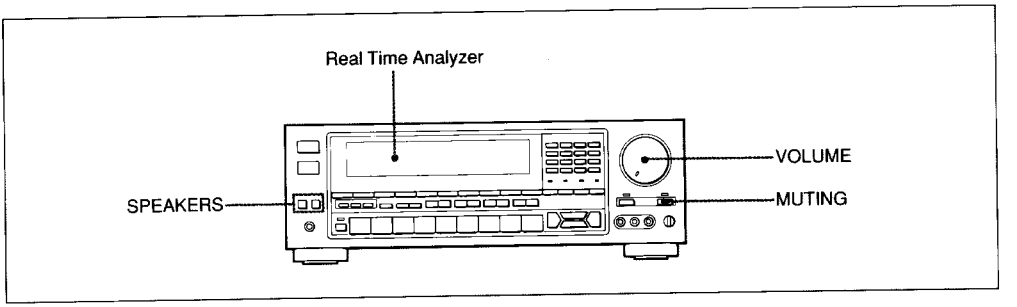
When Sony equipment cannot be remote-controlled
Program the signal in the same way as for equipment from other manufacturers. In this case, even with Sony equipment, set the mode selector to USER STD.

Battery life
Normal operation can be expected for about a half year using Sony SUM-3 (NS), and a year using Sony AM-3 (NW) alkaline batteries. If the LEARN indicator does not light when a button is pressed, the batteries are almost exhausted. When the batteries are exhausted, the remote commander can no longer operate the unit or programming becomes impossible.
If this happens, replace both batteries with new ones. We strongly recommend the use of alkaline batteries.

If no signal has been programmed
The programmable commander can control Sony equipment even when the mode selector is set to USER STD.

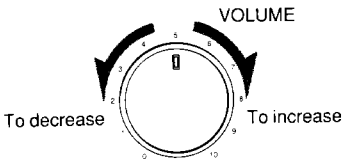
If the equipment works incorrectly
Press RESET and operate again. The programmed contents of the buttons are not cleared by pressing RESET.

Basic Controls



Volume Adjustment

To adjust the output level
Turn the VOLUME control knob.



To reduce the sound temporarily to a low level (–20 dB attenuation)
Press MUTING. Press again to restore the previous sound level.

Balance Adjustment

To change the relative output level of the right and left speakers
Turn the BALANCE control to correct stereo imaging when the speaker position is not symmetrical.

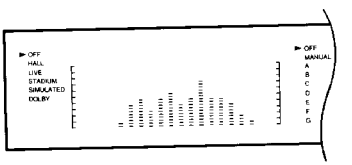
Speaker Selection

Press SPEAKERS A to select the speaker system connected to SPEAKERS A terminals.
Press SPEAKERS B to select the speaker system connected to SPEAKERS B terminals.
Press SPEAKERS A and B to select the both.

- Select SPEAKERS A to listen to the surround sound with both front and rear surround speakers. When SPEAKERS B is selected, rear surround speakers will not be activated.
- The signal from the PRE OUT jack is output regardless of the speaker selection.

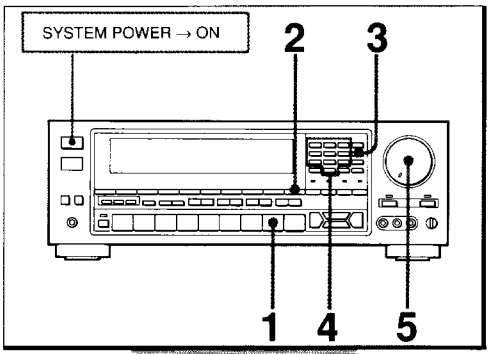
Real Time Analyzer (RTA)

The real time analyzer displays audio output levels of each frequency segment. To check the peak levels, press PEAK HOLD.
To change the display to the parametric equalizer or the demonstration mode, press RTA/EQ until the desired display appears.

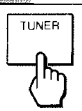


Receiving Radio Broadcast Programs

Direct Tuning



1 Select TUNER.

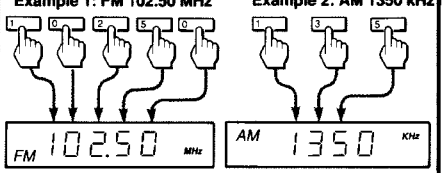


2 Select FM or AM.

3 Press TUNING DIRECT.

4 Enter the frequency of the desired station.

Example 1: FM 102.50 MHz **Example 2: AM 1350 kHz**



5 Adjust the volume.

Tuning intervals for direct tuning
FM: 50 kHz interval
AM: 10 kHz interval (changeable to the 9 kHz interval)

Changing the AM tuning interval
The AM tuning interval is preset to 10 kHz. To use the receiver where the frequency allocation system is based on the 9 kHz interval, make the following adjustments:

1 Turn on the power and tune in any AM station.
2 Press SYSTEM POWER to turn off the receiver.
3 While pressing PRESET TUNING +, press SYSTEM POWER again to turn on the receiver.

Resetting the AM tuning interval
Follow the procedure for changing the AM tuning interval.

Caution
When the interval is changed, all preset stations which you have stored will be erased. After changing the interval, be sure to newly preset stations. (See "Presetting Stations" on page 20.)

When the entered number is not in the receivable frequency range
The entered digits blink in the frequency display area, and reception does not take place.
If this condition occurs, press TUNING DIRECT again, and enter the correct frequency (the frequency range of the receiver is 87.50 to 108.0 MHz for FM, and 530 to 1710 kHz for AM).

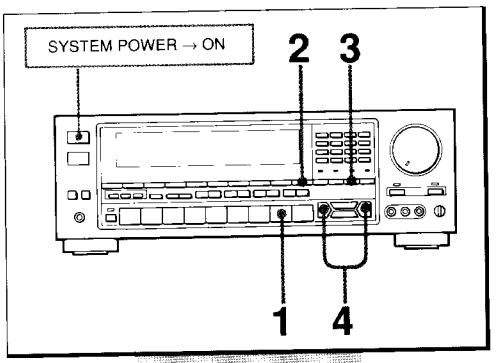
Correcting the entered frequency
Repeat Steps 3 to 4 of direct tuning.

For entering AM frequencies, you need not enter the last "0".
However, if you have changed the AM tuning interval to 9 kHz, enter all the digits.

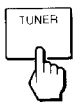
If you enter a frequency not covered by the tuning interval
The entered value is automatically rounded up or down to the closest value covered by the tuning interval.

When an FM stereo program is noisy
When the unit receives an FM stereo program, the STEREO indicator goes on in the display window. If the stereo program is noisy, press FM MODE to change the mode over to MONO. This eliminates the stereo effect, but the noise will be greatly reduced. To return to the stereo mode, press FM MODE again.

Auto Tuning

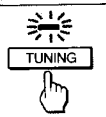


1 Select TUNER.



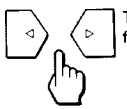
2 Select FM or AM.

3 Select CURSOR MODE TUNING.



4 Press a cursor to start auto tuning.

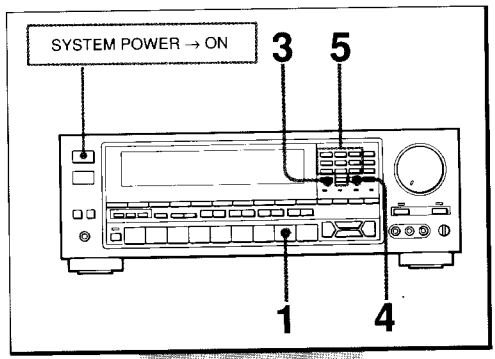
To tune in lower frequencies



To tune in higher frequencies

Selecting the signal level of the station to be tuned in
You can select "high" or "low" as the FM tuning level by pressing cursors.
Press △ to select high; HIGH displayed in the display window.
Press ▽ to select low; HIGH display disappears.
HIGH: The frequencies of strong signal stations only will be tuned in.
LOW: The frequencies of all receivable stations will be tuned in.

Presetting Stations



A total of 30 FM/AM stations (10 stations on each memory page) can be stored in the unit's memory in any desired sequence.

1 Select TUNER.

2 Tune in the desired station by direct tuning or auto tuning.

3 Press MEMORY.
MEMORY indicator appears for a few seconds.

4 Press SHIFT to select the memory page (A, B, or C).
The memory pages can be classified according to the station band, etc.

5 Press the desired numeric button (1 to 0) to preset the station.

Repeat above steps for presetting other desired stations.

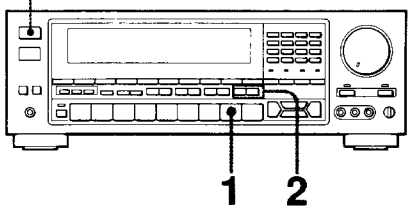
If the MEMORY indicator goes off before pressing the numeric button
Press MEMORY again to display the indicator.

Replacing a preset station
Preset another station on the number of the station to be replaced. The previously preset station will be erased.

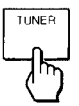
Tuning in Preset Stations - Preset Tuning

Scanning preset stations

SYSTEM POWER → ON



1 Select TUNER.

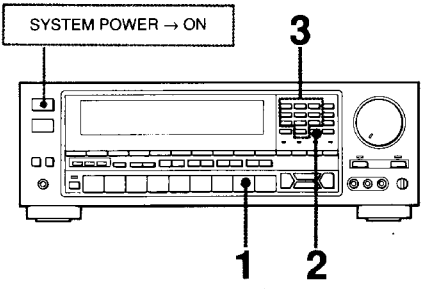


2 Select the desired preset station by pressing PRESET TUNING +/–.

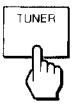
- Each time you press PRESET TUNING + (or –), a preset station of next higher (or lower) preset number is tuned in.
- If you keep pressing + (or –), preset stations are successively tuned in the increasing (or decreasing) order. Release the button when the desired station is tuned in.
- Scanning of the preset stations takes place cyclically from AM to FM, and vice versa.

Tuning in preset stations directly

SYSTEM POWER → ON

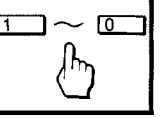


1 Select TUNER.

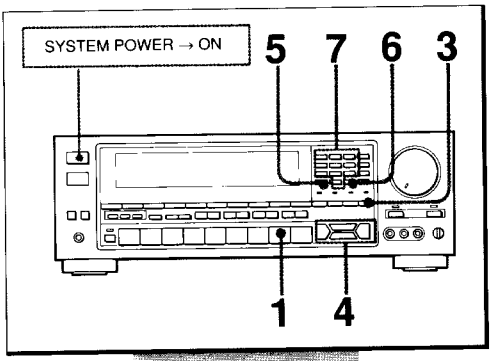


2 Press SHIFT to select the memory page (A, B, or C).

3 Press the desired numeric button (1 to 0).



Labelling the Preset Stations – Index Input



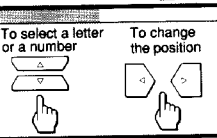
You can organize preset stations under Index Names which you create (up to 4 characters) to categorize the stations by the types of music, for example, ROCK, JAZZ, etc.

1 Select TUNER.

2 Tune in the desired preset station.

3 Press CURSOR MODE INDEX.

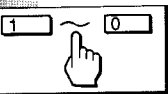
4 Create a Index Name.



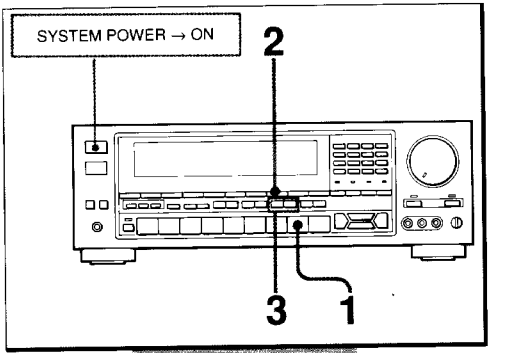
5 Press MEMORY. The MEMORY indicator appears for a few seconds.

6 Press SHIFT to select the memory page (A, B, or C).

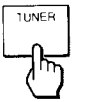
7 Press the desired numeric button (1 to 0).



Index Tuning



1 Select TUNER.



2 Select the Index Name by pressing INDEX SELECT.

3 Select the desired station by pressing INDEX TUNING +/–.

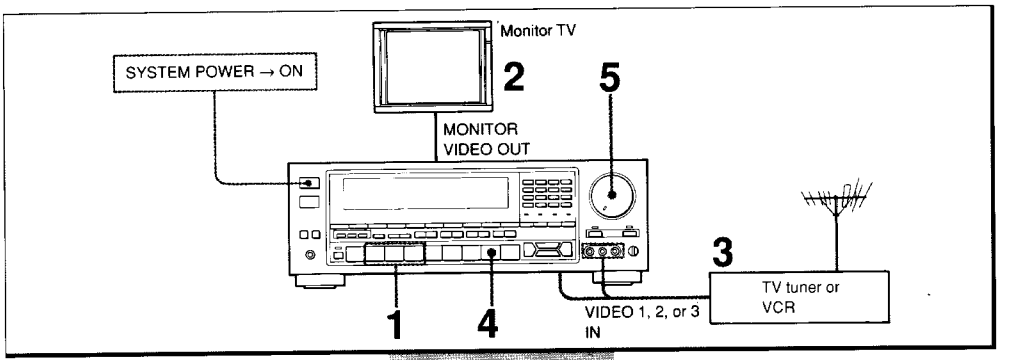
When you want to tune in a station memorized under a different Index Name, press INDEX SELECT as many times until the desired Index Name appears.

Repeat steps 2 to 7 to label other stations.

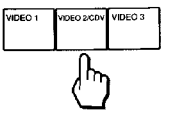
Pressing CURSOR MODE INDEX twice make all 4 digits of the index flash.
Then, all previously memorized indexes can be called up by pressing △ or ▽. This allows you to change a part of previously memorized index to create another new one. To return to the previous mode, press CURSOR MODE INDEX again.

A station can be stored under only one Index Name
If you store an already categorized station under any other Index Name, only the last selected category will be valid.

Receiving FM Simulcast TV Programs



1 Select VIDEO 1, VIDEO 2/CDV, or VIDEO 3.



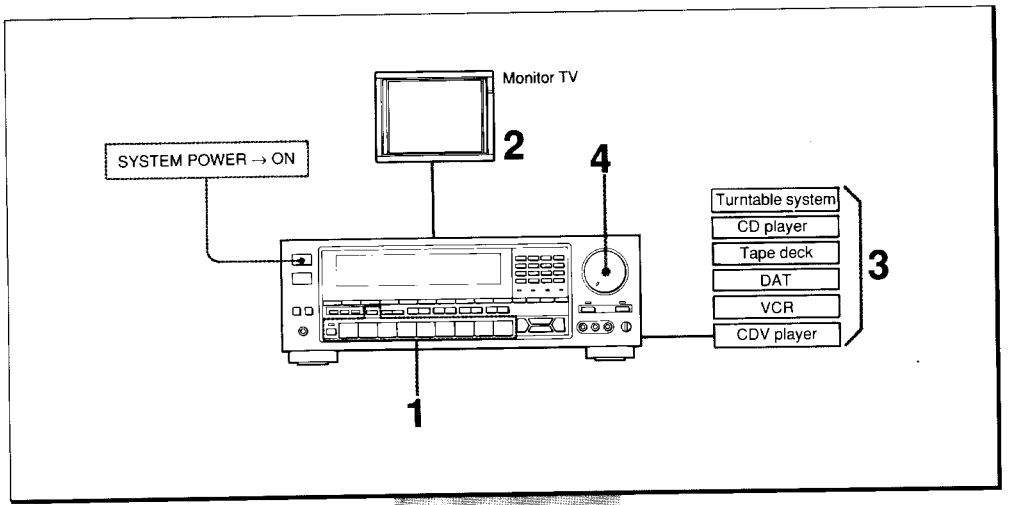
2 Turn on the TV.

3 Select the simulcast TV program on the TV tuner or the VCR.

4 Select TUNER and tune in the FM simulcast program on the receiver.

5 Adjust the volume.

Listening to Other Program Sources



1 Select the program source.
When you select DIGITAL, press the digital input selector to select 1-OPTICAL or 2-COAXIAL. When the digital audio signal is input, SAMPLING FREQUENCY indicator will glow according to its sampling frequency (ex. 44. 1 kHz for CD, etc.).

2 Turn on the TV when you selected video program sources.

3 Start the selected program.

4 Adjust the volume.

Enjoying Digital Sound Effects

The STR-D2010 incorporates a digital signal processor which consists of digital parametric equalizer, digital surround processor, and the DDS (Digital Dynamic Sound).
The parametric equalizer controls the output level of the desired frequencies, and the sorround processor electronically reproduces a natural sound field for various kinds of music. The DDS system provides powerful sound even at small output levels.
By using these three digital sound effects, you can create a optimum sound quality and sound atmosphere in your room.

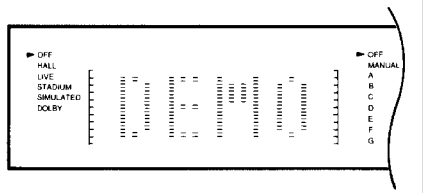
Understanding the Sound Effects with the Demonstration Mode

The STR-D2010 has the demonstration mode which illustrates the effects of each digital sound effect and other main features, such as Index Tuning. Before controlling sound effects, experience the difference with the actual sound and displays on the unit.

To start the demonstration mode

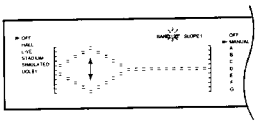
1 Play back a program source, such as a CD.

2 Press DISPLAY/DEMO until "DEMO" appears on the display. The demonstration mode will illustrate sound effects, etc. in the following order (see the next page):

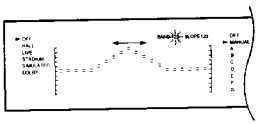


Digital Parametric Equalizer

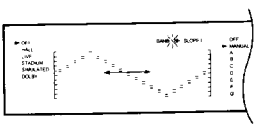
BAND 1-3
Adjusts the level of each frequency band.



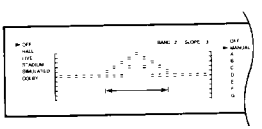
FREQ
Moves the frequency of BAND 1.



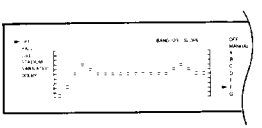
PILE
Displays the combination of all three equalization curves and moves the frequencies to show the change of total equlization curve.



SLOPE
Changes the slope of equalization curve.

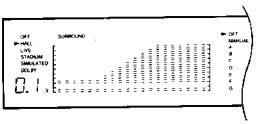


CALL
Recalls stored equalization curves (A to G).



Digital Surround Processor

Displays each surround mode and illustrates the change of reverberation time and surround level.

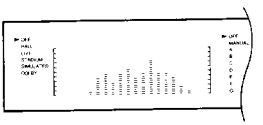


DDS

Turns on and off the DDS.

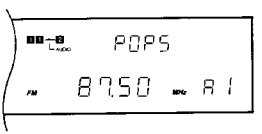
DISPLAY

Displays RTA (Real Time Analyzer), PEAK meter, and equalization curve.



INDEX

Demonstrates creating Index Name and Index Tuning.



To stop the demonstration mode
Press any button other than SPEAKERS.

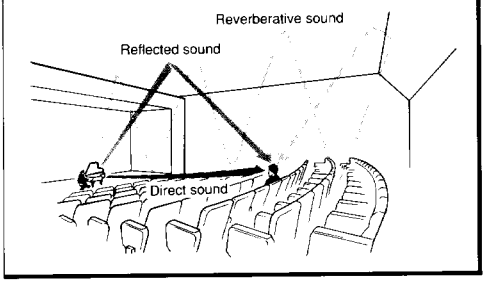
Using the Surround Effects

What is a surround effect?

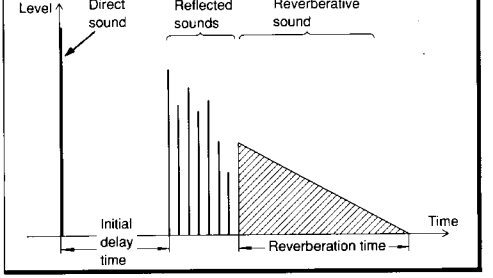
The sound heard in places such as a concert hall or a movie theather consists of a direct sound, a reflected sound and a reverberative sound which reach you later than a direct one. The acoustics of a room affect the way these three sounds are heard. We can estimate the size or type of a hall by listening to these three kind of sounds even with our eyes closed.

The STR-D2010 reproduces the reflected sound and the reverberative sound using its digital signal processor and allows you to design a variety of acoustic sound fields in your own room.

Types of the sound



Transition of the sound



Selecting Sorround Modes

HALL
Provides the reverberation effect that is produced in a concert hall. This mode is most appropriate for programs with little reverberation, such as studio recordings.
You can adjust the reverberation time and surround level.

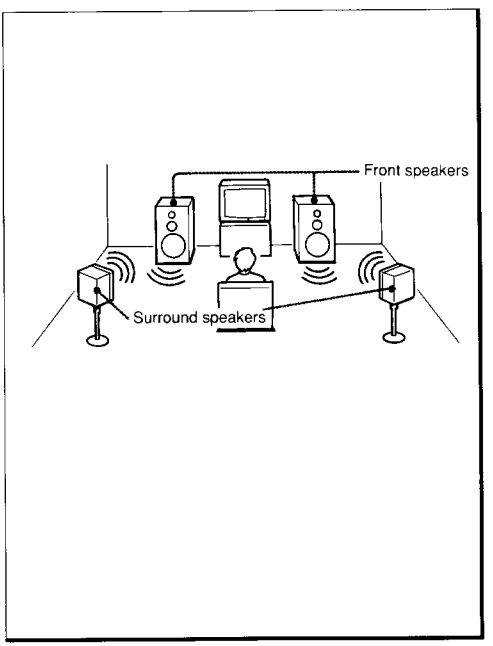
STADIUM
Provides the effect of sound heard in a stadium. This mode is also appropriate for programs with little reverberation, such as studio recordings.
You can adjust the reverberation time and surround level.

LIVE
Provides the effect just of a real live performance. This mode is suitable for enjoying programs with a lot of reverberation, or a movie without Dolby surround processing.
You can adjust the initial delay time and surround level.

SIMULATED
Gives a simulated stereo effect to monaural program source. You can adjust the initial delay time and surround level.

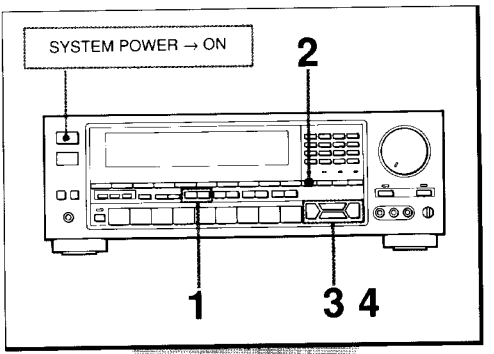
DOLBY
Decodes movie programs processed with the Dolby surround effect. It expands the sound to create a sound as heard in a movie theather. You can adjust the intial delay time and surround level.

How to place speakers

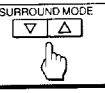


Listening to the Surround Sound

Select SPEAKERS A to listen to the surround sound with both front and rear surround speakers. When SPEAKERS B is selected, rear surround speakers will not be activated.



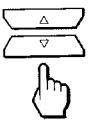
1 Select the desired surround mode.



2 Press CURSOR MODE SURROUND.

3 Adjust the reverberation/initial delay time.

4 Adjust the surround level.
*Both the reverberation/initial delay time and surround level are stored in the surround mode each time after adjustment.



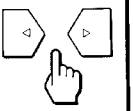
To turn off the surround effect
Press SURROUND ON/OFF. The normal sound without surround effect will resume.

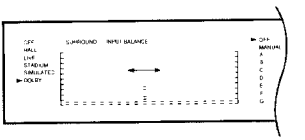
Note
Surround function and parametric equalizer do not have any effect on the program source connected to the TAPE 2 MONITOR.

About the input balance control
When selecting the Dolby surround mode, adjust the input balance as flollows:

1 Press CURSOR MODE SURROUND until "INPUT BALANCE" appears on the display.

2 Adjust the input balance so that the audio level of the surround speaker is minimized during the scene of conversation (where the sound is monaural).
Although the balalnce changes each time you press a cursor button, the indicator moves one space for every fourteen to fifteen times the button is pressed.

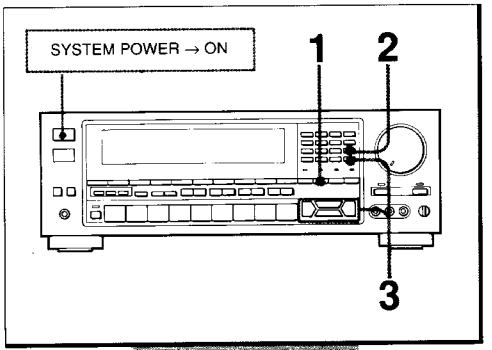




Using the Parametric Equalizer

Creating an Equalization Curve

Seven equalization curves are preset at the factory for typical applications (see page 32).
If you want to enjoy music with different equalization curves, follow these steps to create new equalization curves.



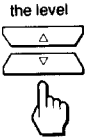
1 Press CURSOR MODE EQUALIZER. If only one band number appears, press the button again.

2 Select a frequency band. The selected number blinks. Although you can select any frequency in the display to any of three bands, it is recommended to use each band as follows for easier operation.

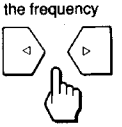
BAND	FREQUENCY
1	For lower frequencies
2	For intermediate frequencies
3	For higher frequencies

3 Create the equalization curve.

To adjust the level



To adjust the frequency



To adjust the slope

4 Repeat steps 2 and 3 for other frequency bands until you obtain the desired equalization curve. To restore the real time analyzer display, press RTA/EQ.

To turn off the parametric equalizer effect

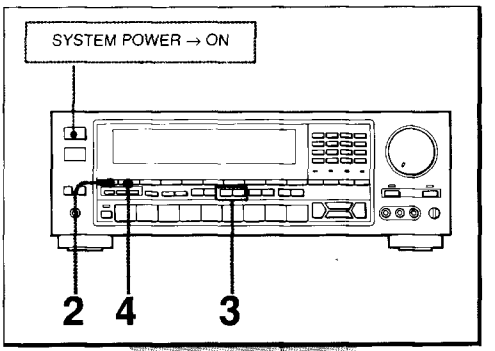
Press EQUALIZER ON/OFF. The normal sound without the parametric equalizer will resume.

To check the equalization curve of each frequency band

1 Press CURSOR MODE EQUALIZER until only one band number is displayed.
2 Select the desired frequency band by pressing BAND.

Storing an Equalization Curve

You can store up to seven equalization curves that you have created into the memory and recall them with the EQUALIZER MODE buttons.



1 Create the equalization curve you want to store.

2 Press SET. The MEMORY indicator will appear for a few seconds.

3 Select the desired mode (A to G) under which you want to store the equalization curve.

4 Press WRITE.

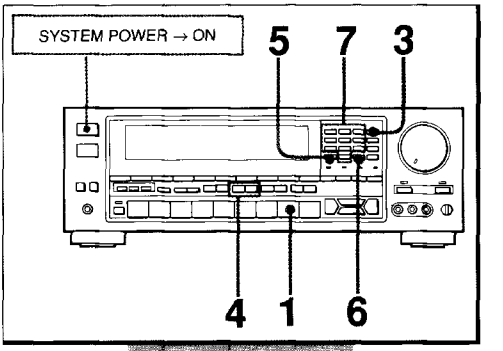
To listen to a music with a stored equalization curve
Select the desired equalization mode. If you have not stored a curve under that mode, the factory-preset curve will be recalled.

When you store a new equalization curve
The factory-preset equalization curve for the same mode will be erased.

Note
Parametric equalizer and surround function do not have any effect on the program surce connected to the TAPE 2 MONITOR.

Assigning an Equalization Mode to Preset Stations – EQ Link

You can assign a stored equlization curve to the desired preset stations.



1 Select TUNER.

2 Tune in the desired station (refer to pages 19 - 22 for the operation).

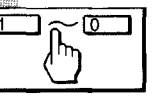
3 Press EQ PGM SET.

4 Select the equalizer mode which you want to assign to the selected station.

5 Press MEMORY. The MEMORY indicator will appear for a few seconds.

6 Press SHIFT to select the memory page (A, B, or C).

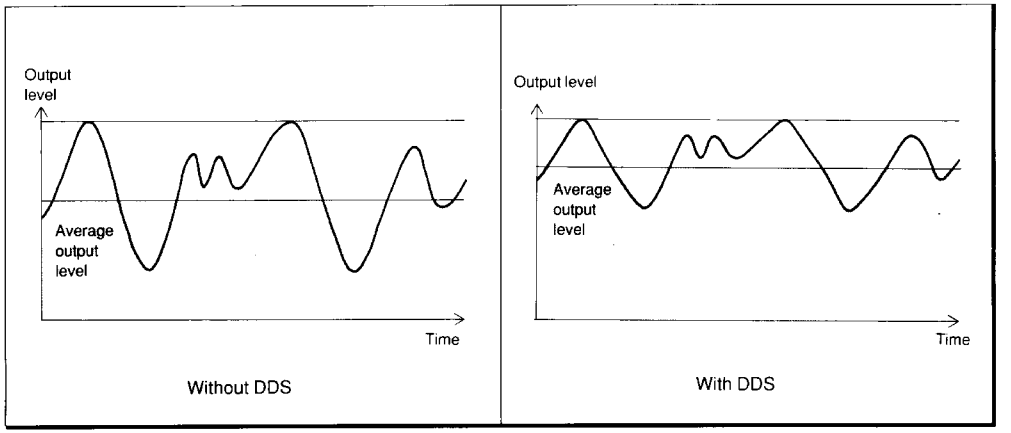
7 Press the desired numeric button (1 to 0).



To listen to the preset station with the stored equalizer mode.
Press PREET EQ LINK ON/OFF to turn on the EQ Link function (the indicator will appear). To turn off the function, press PRESET EQ LINK ON/OFF again. Always turn off the EQ Link function before selecting other program sources from TUNER function.

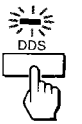
Using the Digital Dynamic Sound

The DDS (Digital Dynamic Sound) system increases the average output level of the program source while keeping its maximum peak output level.
Since the DDS makes a powerful sound without increasing the maximum output level, you can enjoy dynamic sound even at small output levels.



Turning on the DDS effect

Press DDS. Press the button again to resume normal sound without DDS.



Note
The DDS will not have any effect when used in Dolby surrond mode.

Recommended Combinations of the Digital Sound Effects

Application/ Situation	Surround function			Parametric equalizer (factory preset mode)	DDS	Effects
	Mode	Reverberation/ initial delay time	Surround level (number of bar displays)			
When listening to orchestral music.	LIVE	60 ms	15	A	OFF	Provides the atmosphere of a large concert hall.
When listening to instrumental solo or chamber music.	HALL	1.9 s	15	OFF	OFF	Reproduces music with the soft reverberation heard in a medium-size concert hall.
When listening to rock or pops music.	STADIUM	3.3 s	16	C	ON	Gives the atmosphere of a live concert to program sources recorded in a studio.
When listening to disco music.	OFF	–	–	G	ON	Reproduces the powerful bass sound which is heard in discos.
For background music	HALL	1.6 s	12	D	OFF	Gives a light and bright feeling to program sources.
When listening to program sources at small output levels.	HALL	1.6 s	12	E	ON	Gives a powerful feeling even at small output levels.
When enjoying Dolby surround video programs.	DOLBY	20 ms	14	OFF	OFF	Reproduces the full effects of Dolby surround sound as heard in a movie theater.
When enjoying Dolby surround video programs without rear surround speakers.	LIVE	28 ms	18	B	OFF	Reproduces the effects of Dolby surround only with the front speakers.
When enjoying monaural video programs.	SIMULATED	28 ms	15	OFF	OFF	Gives width and depth to the monaural sound of old movies, etc.
When recording a tape for a headphone stereo such as a Walkman*.	OFF	–	–	F	ON	Creates powerful sound with reinforced bass and treble. • Use cassette deck connected to the TAPE 2 jacks.

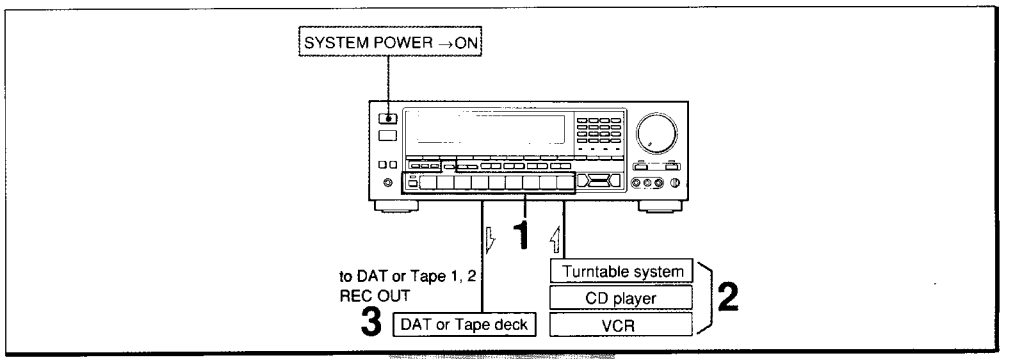
* Walkman is a trademark of Sony Corporation.

To recall factory preset equalizer modes
If you created new equalization curves and stored them in the unit, proceed to recall factory preset ones in the following way.

1 Select CURSOR MODE SURROUND.
2 Press SYSTEM POWER to turn off the unit.
3 While pressing the SURROUND MODE △, Press SYSTEM POWER again to turn on the unit.
Surround settings also reset to the factory preset ones.

Recording on an Audio Tape or DAT

Recording Program Sources



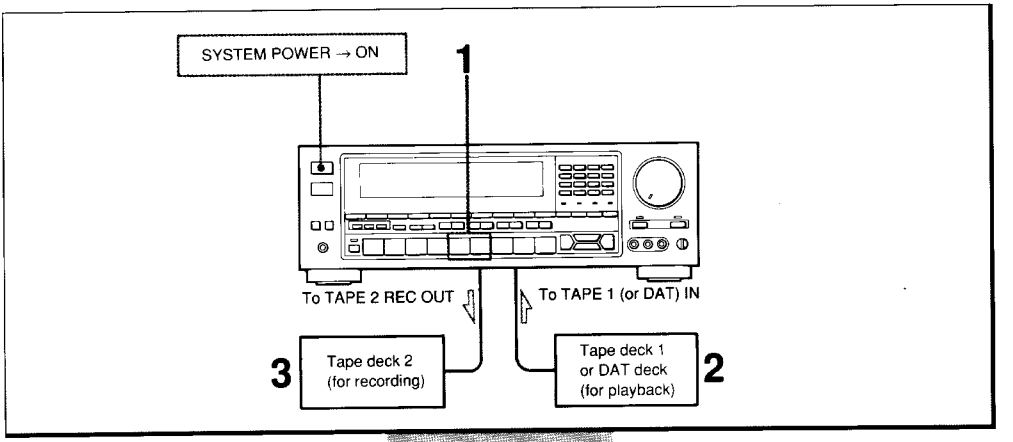
1 Select the desired program source.
For an FM/AM broadcast, tune in the desired station.

2 Start the selected program source.

3 Set the tape (DAT) deck to the recording mode.

Tape Dubbing

Tape Dubbing



1 Press TAPE 1 or DAT.

2 Set the tape deck 1 or DAT deck to the playback mode.

3 Set the tape deck 2 to the recording mode. Dubbing will start.

Note on recording
Use TAPE 2 REC OUT to record with the parametric equalizer and surround effects.
For the other REC OUT jacks, the settings of the parametric equalizer and surround function do not have any effect on recording.

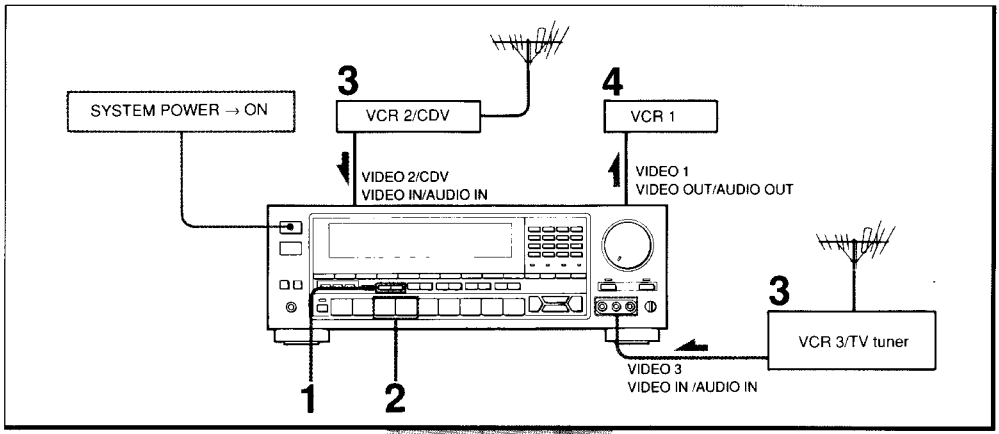
Monitoring the recorded sound
If you have connected a tape deck having separate record and playback heads to the TAPE 2 jacks, you can monitor the recording results. While recording or dubbing, press the TAPE 2 MONITOR button. To listen to the source sound again, press the button again.

Note on tape dubbing
Tape dubbing is possible only in the following directions:

From (playback side)	To (recording side)	Funciton selector to be pressed
Tape deck connected to TAPE 1 IN	Tape deck connected to TAPE 2 REC OUT	TAPE 1
	DAT deck connected to DAT REC OUT	
DAT deck connected to DAT IN	Tape deck connected to TAPE 1 or 2 REC OUT	DAT

Video Operations

Recording on a Video Tape



1 Select the program source by pressing EDIT VIDEO.
1⟵2: for VCR 2/CDV 1⟵3: for VCR 3
If the AUDIO indicator is lit in the display, press EDIT AUDIO to go off the indicator.

2 Select the input video signal source for the monitor TV with the function selectors.
VIDEO 2/CDV: for VCR 2.
VIDEO 3: for VCR 3.

3 Set the VCR selected in the step 1 to the playback mode.

4 Set VCR 1 to the recording mode.

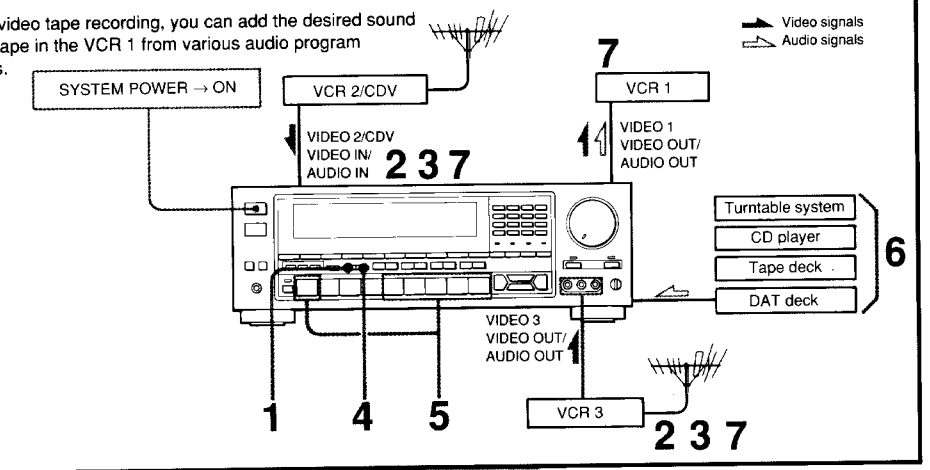
To switch the playback-side VCR during editing
Press EDIT VIDEO. Each time you press the button, the playback-side VCR switches from VCR 2/CDV to VCR 3, and vice versa.

Note
The parametric equalizer and surround function do not have any effect for VIDEO 1 AUDIO OUT jacks.

Listening to an audio program during video tape recording
1. Press the appropriate function selector.
2. Start the selected audio program source.

Adding the Desired Sound on a Video Tape during Recording

During video tape recording, you can add the desired sound on the tape in the VCR 1 from various audio program sources.



1 Select the playback-side VCR by pressing EDIT VIDEO.
1 → 2: for VCR 2 1 → 3: for VCR 3

2 Insert a recorded video tape into the playback-side VCR and set the VCR to the playback mode.

3 At the point where audio dubbing is to start, press the pause button on the playback-side VCR.

4 Press EDIT AUDIO.

5 Select the audio program surce with the appropriate function selector.

6 Start the selected audio program source.

7 Release the pause mode of the playback-side VCR, and set the VCR 1 to the recording mode.

Specifications

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8-ohm load, both channels driven, from 20 – 20,000 Hz, rated 130 watts per channel minimum RMS power, with no more than 0.008% total harmonic distortion from 250 milliwatts to rated output.

Other Specifications

Amplifier section

Dynamic power output	8 ohms, at 1 kHz IHF	195 + 195 watts
	4 ohms, at 1 kHz IHF	250 + 250 watts
Power output of surround amplifier (8 ohms, at 1 kHz)		15 + 15 watts
Harmonic distortion at rated output		Less than 0.008%
Intermodulation (IM) distortion at rated output		Less than 0.008%
Frequency response	PHONO RIAA equalization curve	±0.5 dB
	CD, DAT, TAPE 1/2, DIGITAL (OPTICAL/COAXIAL) VIDEO 1, 2, 3	5 Hz – 20 kHz ±0.5 dB
Residual noise		Less than 70 µV
Damping factor (8 ohms, at 1 kHz)		50
Input sensitivity/ inpedance	PHONO MM	3 mV, 50 kilohms
	DAT, CD, VIDEO 1, 2, 3 TAPE 1, 2	200 mV 50 kilohms
	DIGITAL (COAXIAL)	0.5 Vp-p, ±20%, 75 ohms
	DIGITAL (OPTICAL)	TOSLINK
Output sensitivity/ impedance	DAT OUT TAPE OUT 1, 2 VIDEO 1	200 mV 10 kilohms
	SPEAKERS	Accepts speakers of 8 – 16 ohms
	HEADPHONES	Accepts headphones of high and low impedance
MUTING		–20 dB

Digital section

Modulation (A/D conversion)		16-bit liner
Demodulation (D/A conversion)		Dual 18-bit liner
Digital filter		18-bit 8-times over sampling
Sampling frequency		32 kHz, 44.1 kHz, 48 kHz
Parametric equalizer (at 44.1 kHz)	Frequency	27, 37, 52, 72, 100, 140, 190, 270, 370, 520, 720 Hz
		1.0, 1.4, 1.9, 2.7, 3.7, 5.2, 7.2, 10, 14 kHz
	Level	+/– 10 dB, 2dB/step
Delay time		1 ms – 9.9 s
DDS		+ 6 dB

Video section

Inputs	VIDEO 1, 2, 3: 1 Vp-p 75 ohms
Outputs	VIDEO 1, MONITOR: 1 Vp-p 75 ohms

FM tuner section

Frequency range		87.5 – 108.0 MHz
Antenna terminals		75 ohms coaxial
Sensitivity at 50 dB		18.3 dBf, 45 µV (mono) 38.3 dBf, 45 µV (stereo)
Usable sensitivity		11.2 dBf, 2 µV (IHF)
S/N	Mono	84 dB
	Stereo	78 dB
Harmonic distortion at 1 kHz	Mono	0.2%
	Stereo	0.4%
IM distortion	Mono	0.2%
	Stereo	0.4%
Separation		45 dB at 1 kHz
Frequency response		30 Hz – 15 kHz $^{0}_{-1.5}$ dB
Selectivity		65 dB at 300 kHz
Capture ratio		1.2 dB
AM suppression ratio		60 dB
Image response ratio		80 dB
IF response ratio		90 dB
Sprious response ratio		100 dB
RF intermodulation at 800 kHz		65 dB
Auto tuning threshold	Low	30 dBf
	High	50 dBf

AM tuning section

Frequency range	530 – 1710 kHz (with 10 kHz interval) 531 – 1710 kHz (with 9 kHz interval)
Antenna	Loop antenna
Usable sensitivity	50 dB/m (at 1,000 kHz or 999 kHz)
S/N	54 dB (at 50 mV/m)
Harmonic distortion	0.5% (50 mV/m, 400 Hz)
Selectivity	35 dB (9 kHz), 40 dB (10 kHz)
Auto tuning threshold	55 dB/m

General

System	Tuner section	PLL quartz-locked digital synthesizer system
	Preamplifier section	Low-noise NF type equalizer
	Power amplifier section	Pure-complimentary SEPP.
Power requirements		120 V AC, 60 Hz
Power consumption		USA model: 250 watts Canada model: 520 VA (5 watts at standby condition)
AC outlets		Two switched, total 100 watts
Dimensions		430 × 148 × 369 mm (17 × 5⅞ × 14⅝ inches)
Weight		12.1 kg (26 lb 11 oz)

Supplied accessories

FM ribbon antenna (1), AM loop antenna (1)
Programmable System Commander RM-P201 (1)
External antenna connector (1)
Sony Batteries SUM-3 (NS) (2)

Design and specifications subject to change without notice.

Troubleshooting

Before proceeding through the check list below, examine the connections and the procedures outlined in the manual.

Should any problem persist after you have checked the following items, consult your nearest Sony dealer.

Radio Broadcast Reception

Problem	Cause	Solution
No FM station can be tuned in Auto-Tuning.	The signal strength of the stations is too weak.	Press TUNING LEVEL ▽ to set to low level.
The STEREO indicator flickers or does not appear when receiving stereo programs.	A very weak FM station or a noisy FM program is received.	Adjust the antenna or connect an external FM antenna.
		Press FM MODE to set to MONO mode.
No station can be tuned in by Auto-Tuning.	The AM tuning interval is set incorrectly.	Change the tuning interval according to the AM frequency allocation system of your country. (See page 19.)
	The signal strength of the stations is too weak for Auto-Tuning.	Adjust the antenna.
		Directly tune in the stations. (See page 19.)
No stations can be tuned in by Preset Tuning.	No stations have been preset.	Preset the stantions.

Remote Commander

Problem	Cause	Solution
The remote commander will not operate.	The batteries are exhausted.	Replace the batteries with new ones.
	The commander head is not pointed toward the receiver.	Point the commander head toward the receiver.
	There is an object between the commander and the receiver.	Remove the object.
The remote-control signal cannot be programmed.	There is noise interference.	Place both remote commanders apart from the source of noise.
	The batteries are exhausted.	Replace the batteries with new ones.
The LEARN indicator goes off after flashing.	The internal memory capacity is full.	Clear all the signals and program again. (See page 17.)

Sound

Problem	Cause	Solution
No sound is heard even if the volume is adjusted.	The speaker or program source equipment is not connected correctly.	Connect the equipment correctly.
	The SPEAKERS selectors are not set correctly.	Set the selectors correctly.
	The TAPE 2 MONITOR button has been pressed for a program source other than tape deck 2. (The indicator is lit.)	Press the button to disengage.
	A wrong function selector has been pressed.	Check the display window, and press the correct function selector.
	The function switch on the VCR is not set correctly.	Check and set it correctly.
Sound is heard only at a very low volume.	The MUTING button has been pressed. (The indicator is lit.)	Press the button to disengage.
One channel does not trasmit audio, or the volume from the left and right speakers in unbalanced.	The BALANCE control is not set appropriately.	Adjust the BALANCE control.
	The speaker or program source is not connected correctly.	Check and properly connect the equipment.
There is an abrupt loss of sound from one or both of the speakers, and the PROTECTOR indicator flickers in the display window.	A short-circuit problem has activated the protective circuit.	Turn off the unit, eliminate the short-circuit problem and turn on the power again. If there is no short-circuit problem, consult your nearest Sony dealer.
Sound emitted from the speakers is reversed.	The speakers are not connected correctly.	Connect the right speaker to the R speaker terminals and the left speaker to the L speaker terminals.
There is lack of bass sound or the instrument position is obscure.	The +/– connection of the speaker is reversed.	Connect the speaker with the correct phase.
Severe hum or noise is heard.	The connecting cords are not the shielded type.	Use shielded type cords.
	A transformer, motor, TV or fluorescent light is affecting the connecting cords.	Place the connecting cords in a location away from such equipment.
	The audio components are too close to a TV set.	If both are used at the same time, separate the TV from the audio components.
	The unit is not grounded.	Connect the ground wire to the antenna ground terminal.
	The connections are loose.	Make secure connections.
	The plugs and jacks are dirty.	Wipe the plugs and jacks with a cloth lightly dampened with alcohol.